# LOOMIS

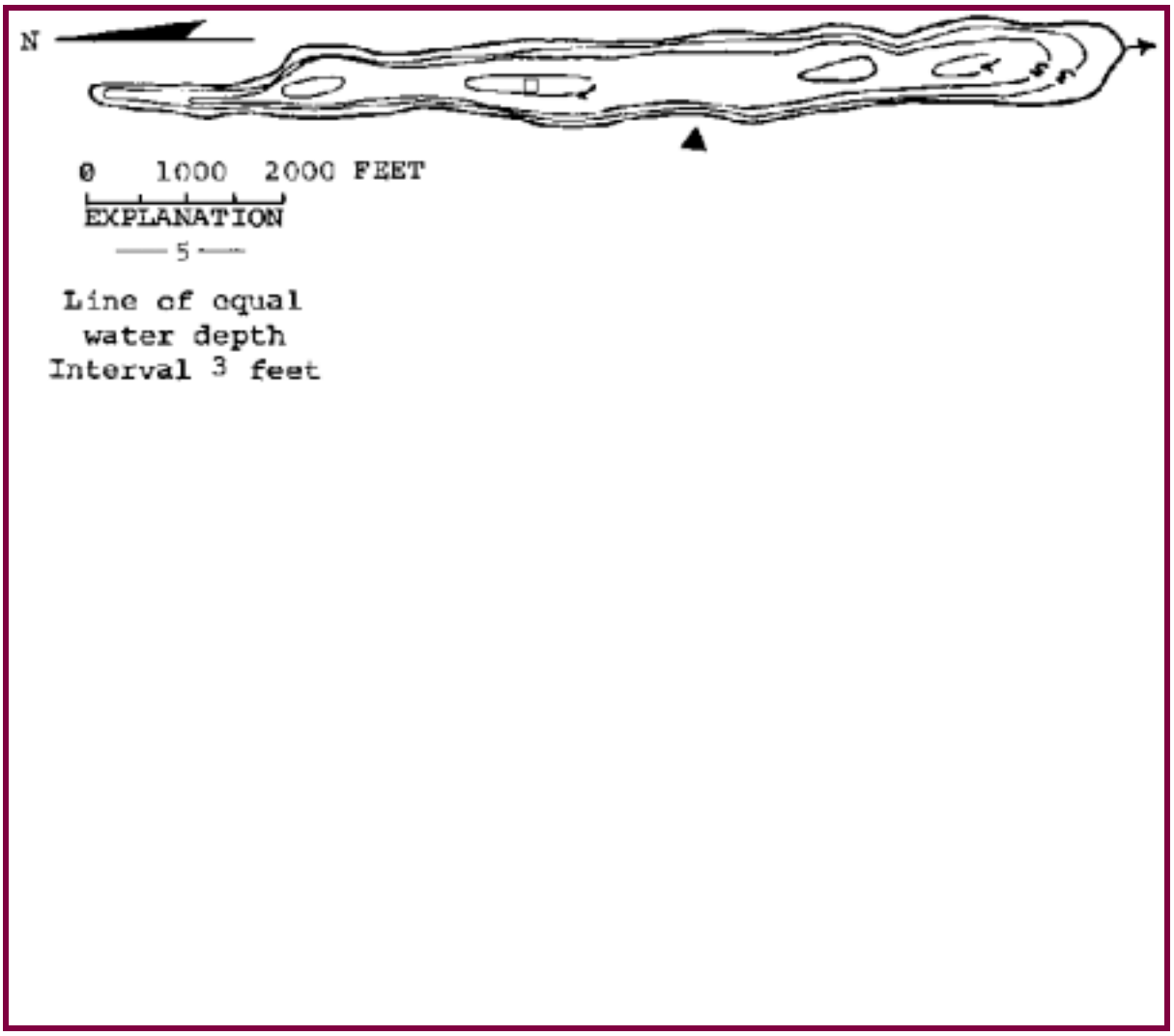
PACIFIC County

***Lake ID:*** *LOOPA1*

***Ecoregion:*** 1

Loomis is a dune lake located just north of Long Beach in Pacific County. It is a very shallow lake with a distinct tannin color. There is an abundance of macrophytes throughout the lake.

| *Area (acres)* | *Maximum Depth (ft)* | *Mean Depth (ft)* | *Drainage (sq mi)* | |
|---|---|---|---|---|
| 165 | 9 | 5 | 1 | |
| ***Volume (ac-ft)*** | ***Shoreline (miles)*** | ***Altitude (ft abv msl)*** | ***Latitude*** | ***Longitude*** |
| 825 | 4.32 | 17 | 46 25 26. | 124 02 27. |



## Station Information

LOOPA1

| | | | |
|---|---|---|---|
| Primary Station | Station # 1 | latitude: 46 26 32.6 | longitude: 124 02 29.5 |
| | Description: Located in middle of lake, about 2000 feet north of boat launch. | | |

## Trophic State Assessment for 1999

LOOMIS

Analyst: Sarah O'Neal

| | | | |
|---|---|---|---|
| TSI_Secchi: [a] | 55 | BB | |
| TSI_Phos: | 58 | | |
| TSI_Chl: | 58 | | |
| Narrative TSI: [b] | E | | |

Loomis Lake is an extremely shallow dune lake, which is probably naturally eutrophic. While nutrient levels indicated eutrophy, water clarity was better than the TSI indicated and increased later in the summer. The Secchi disk hit the bottom of the lake twice during the course of sampling, which overestimated the Secchi Trophic State Index. No algal blooms were documented during the summer, though chlorophyll concentrations were very high in the spring. The plants in the lake were somewhat dense, and two aggressive, non-native species were present: Brazilian elodea (Egeria densa), which was discovered in 1999, and Eurasian watermilfoil (Myriophyllum spicatum). Fortunately, neither plant dominated the plant community. Dense native bur-reeds (Sparganium eurycarpum) surrounded the lake, acting as a shoreline buffer. The surrounding shoreline was naturally vegetated and was known to serve as habitat for osprey and swallows. The watershed may suffer from significant disturbance when a planned housing development is built along the southeast shores of the lake.

No questionnaires were completed for the lake. Plant growth throughout the lake likely limited primary contact recreation. The lake was used for fishing. According to WDFW officials, the fishery on Loomis Lake suffered greatly from the dense macrophyte growth. Trout stocking had decreased significantly several years prior to 1999 due to this problem, in addition to a higher angler demand for bass. Twelve thousand rainbow trout were planted in the lake in 1997, though few were caught, particularly in depths less than about eight meters where vegetation was the densest. Consequently, only 2000 - 3000 trout were planted in 1998. On opening day of 1999, only thirty fish were caught by approximately 25 anglers, a very poor return. WDFW planned to reduce rainbow trout stocking even further for the spring of 2000. Unfortunately, cold water temperatures due to the lake's proximity to the ocean render the lake a poor warmwater fish habitat as well. As a result, warmwater fish tend to grow unusually slowly in this lake. The fishery in 1999 primarily consisted of bass and yellow perch, though pumpkinseed, crappie, and brown bullhead were also present at lower densities.

The main beneficial uses of this lake, warmwater fishing and habitat for fish and surrounding wildlife, appeared to be supported by its presumably natural eutrophic state. However, dense plant growth was interfering with the coldwater fishery, and

perhaps with primary contact use. Consequently, in addition to a total phosphorus criterion of 48.6 ug/L (mean 40.6 ug/L plus standard deviation of 8.0 ug/L), we recommend the development of an Aquatic Plant Management Plan.

Mean Secchi = 1.5m (BB); Mean TP = 40.6 ug/L; Mean Chl = 16.4 ug/L

[a] TSI Qualifiers: B or W-Secchi Disk hit bottow or entered weeds; J-Estimate; N-Fewer than the required number of samples

[b] E=eutrophic, ME=mesoeutrophic, M=mesotrophic, OM=oligomesotrophic, O=oligotrophic

## Chemistry Data

LOOMIS

| Date | Time | Strata | Tot P (ug/L | Tot N (mg/L) | TN:TP | Chloro-phyll (ug/L) | Fecal Col. Bacteria (#/100mL) | Hardness (mg/L) | Calcium (ug/L) | Turbidity (NTU) |
|---|---|---|---|---|---|---|---|---|---|---|
| **Station 1** | | | | | | | | | | |
| 6/4/1999 | | E | 56.5 | .88 | 16 | 50.7 | | 30.6 | 4560 | 4.1 J |
| 7/6/1999 | | E | 32.9 | .522 | 16 | 12.7 | | | | |
| 8/4/1999 | 1100 | E | 43.3 | .399 | 9 | 3.3 | | | | 2.1 |
| 9/12/1999 | | E | 32.5 | .366 | 11 | 3.5 | | | | |

Strata: L=lake surface, E=epilimnion, H=hypolimnion; Qualifier: J=Estimate, U=Less than, G=Greater than.

## Watershed Survey

LOOMIS

**Survey Date:** 9/12/1999

### Land Uses (1 = Primary, 2 = Secondary, etc.)

- [ ] **Agriculture(commercial, not hobby)**
- [ ] **Commercial, Industrial**
- [ ] **Major transportation**
- [1] **Residential**
- [2] **Park, forest or natural**

**Impervious surfaces (Roads and parking area):** No Curbs

### Observations (check mark denotes presence)

**BMP's** ☑

Mostly natural shoreline

**Odors** ☐

**Cattle** ☐ **Ducks** ☐ **Geese** ☐

**Fertilizers and weed killers appear to be used in residential or agriculture area** ☐

**Buffer zones around streams and wetlands** ☑

**Irrigation** ☐

**Survey Id:** 30

# Habitat Survey Summary Report

LOOMIS

**Data are averages of** ***10*** **Stations Surveyed** **Date of Visit:** 6/22/1999

## Vegetation Type (Avg. only of sites w/ vegetation present; 1=coniferous, 3=deciduous)

| | | | |
|---|---|---|---|
| **Canopy Layer Avg:** | 2.2 | **Number of stations with canopy:** | 9 |
| **Understory Avg:** | 2.7 | **Number of stations with understory:** | 10 |

## Percent Areal Coverage (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

| | | |
|---|---|---|
| **Canopy Layer:** | **trees > 0.3 m DBH** | 1.0 |
| | **trees< 0.3 m DBH** | 2.0 |
| **Understory:** | **woody shrubs _saplings** | 2.7 |
| | **tall herbs, forbs _grasses** | 1.2 |
| **Ground Cover:** | **woody shrubs _seedlings** | 2.7 |
| | **herbs, forbs, _grasses** | 2.5 |
| | **standing water or inundated veg** | 0.0 |
| | **barren or buildings** | 0.1 |
| **Substrate Type (within shoreline plot):** | **bedrock** | 0.0 |
| | **boulders** | 0.0 |
| | **cobble/gravel** | 0.0 |
| | **loose sand** | 0.0 |
| | **other fine soil/sediment** | 0.0 |
| | **vegetated** | 3.8 |
| | **other** | 0.4 |
| **Bank Features:** | **angle (O:<30; 1: 30-75; 2:nr vertical)** | 0.5 |
| | **vertical dist (M from wtrln to high wt):** | 0.1 |
| | **horiz. dist. (M from wtrln to high wt):** | 0.0 |

## Human Influence (0 = absent, 1 = adjacent to or behind plot, 2 = present within plot)

| | |
|---|---|
| **buildings** | 0.5 |
| **commercial** | 0.0 |
| **park facilities** | 0.1 |
| **docks/boats** | 0.5 |
| **walls, dikes, or revetments** | 0.2 |
| **litter, trash dump, or landfill** | 0.0 |
| **roads or railroad** | 0.0 |
| **row crops** | 0.0 |
| **pasture or hayfield** | 0.0 |
| **orchard** | 0.0 |

| | |
|---|---|
| **lawn** | 0.7 |
| **other** | 0.0 |

## Physical Habitat Characteristics

| | |
|---|---|
| **station depth (m; at 10 m from shore)** | 1.0 |

## Bottom Substrate (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

| | |
|---|---|
| **bedrock** | 0.0 |
| **boulders** | 0.0 |
| **cobble** | 0.0 |
| **gravel** | 0.1 |
| **sand** | 0.9 |
| **silt** | 3.8 |
| **woody debris** | 0.6 |

## Macrophyte Areal Coverage (0 = absent, 1 = <10%, 2 = 10-40%, 3 = 40-75%, 4 = >75%)

| | |
|---|---|
| **submergent** | 1.2 |
| **emergent** | 2.3 |
| **floating** | 0.5 |
| **total weed cover** | 2.4 |
| **Do macrophytes extend lakeward (-1 = yes, 0 = no)** | -0.5 |

## Fish Cover (0 = absent, 1 = Present but sparse, 2 = moderate to heavy)

| | |
|---|---|
| **aquatic weeds** | 1.6 |
| **snags** | 0.0 |
| **brush or woody debris** | 0.6 |
| **inundated live trees** | 0.0 |
| **overhanging vegetation** | 1.1 |
| **rock ledges or sharp dropoffs** | 0.2 |
| **boulders** | 0.0 |
| **human structures** | 0.3 |

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# Zooplankton Report

LOOPA1

Date 6/4/1999 Station: 1
Sample ID 76

Quite a bit of algae, a few rotifers. Sample contains a lot of sediment.

Number of organisms measured: #Delet

| Group | Percent |
|---|---|
| Cladocera | #Deleted |
| Copepod | #Deleted |
| Other | #Deleted |

| Group | Percent |
|---|---|
| Small < 1mm | #Deleted |
| Large >= 1mm | #Deleted |
| Ratio of large to Smal | #Num! |
| Average size (mm): | 0.69 |

Date 6/4/1999 Station: 1 Sample ID 87

Second sample. Extremely dense algae; difficult ID. Sediment in sample as well.

Number of organisms measured: #Delet

| Group | Percent | Group | Percent |
|---|---|---|---|
| Cladocera | #Deleted | Small < 1mm | #Deleted |
| Copepod | #Deleted | Large >= 1mm | #Deleted |
| Other | #Deleted | Ratio of large to Smal | #Num! |
| | | Average size (mm): | 0.56 |

Date 8/4/1999 Station: 1 Sample ID 47

Site number and length of tow not labelled

Number of organisms measured: #Delet

| Group | Percent | Group | Percent |
|---|---|---|---|
| Cladocera | #Deleted | Small < 1mm | #Deleted |
| Copepod | #Deleted | Large >= 1mm | #Deleted |
| Other | #Deleted | Ratio of large to Smal | #Num! |
| | | Average size (mm): | 0.28 |

## Aquatic Plant Data

LOOMIS

Sampler: Parsons, O'Neal

Survey Date: 6/22/1999

Max depth of growth (M):

Comments Partly cloudy. Water level seems up, water very tea colored and hard to see through. Plants not growing much yet, heard there was a bloom of Anabaena here a couple of weeks ago. Found Egeria densa for the first time. Did habitat survey

SPECIES LIST

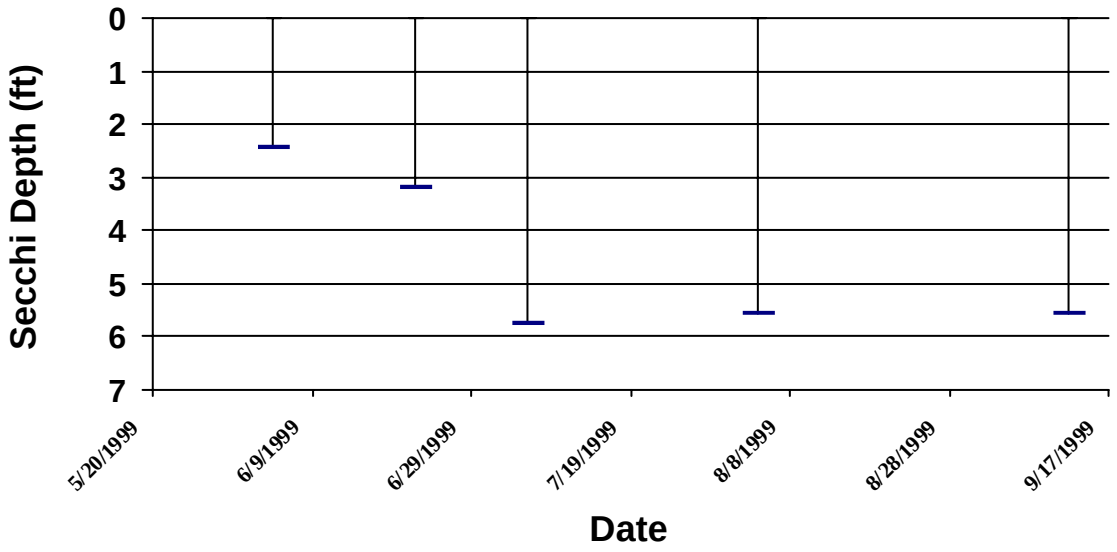
| Scientific Name | Common Name | Dist [a] | Comments |
|---|---|---|---|
| *Ceratophyllum demersum* | Coontail; hornwort | 2 | |
| *Egeria densa* | Brazilian elodea | 2 | distributed at least from just south of launch north to start of homes |
| *Eleocharis sp.* | spike-rush | 2 | shallows |
| *Elodea canadensis* | common elodea | 1 | not much |
| *Equisetum sp.* | horse tail | 1 | |
| *Fontinalis antipyretica* | water moss | 2 | on logs, docks and water |
| *Glyceria sp.* | mannagrass | | |
| *Hydrocotyle ranunculoides* | water-pennywort | 1 | south end and NW shore |
| *Iris pseudacorus* | yellow flag | 1 | north end |
| *Juncus sp.* | rush | 2 | |
| *Myosotis sp.* | forget-me-not | 1 | |
| *Myriophyllum spicatum* | Eurasian water-milfoil | 2 | plants looking sick, not growing much yet |
| *Nitella sp.* | stonewort | 2 | |
| *Nuphar polysepala* | spatter-dock, yellow water-lily | 2 | mostly at south and north ends |
| *Nymphaea odorata* | fragrant waterlily | 1 | |
| *Potamogeton amplifolius* | large-leaf pondweed | 1 | |

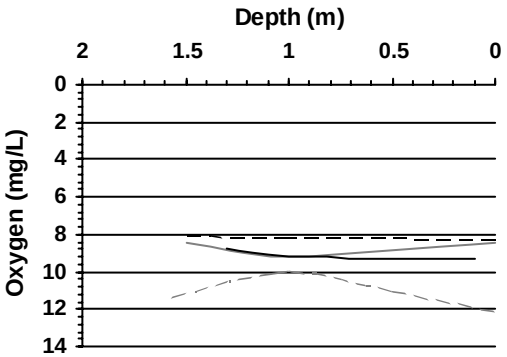
| | | | |
|---|---|---|---|
| *Potamogeton natans* | floating leaf pondweed | | |
| *Potentilla palustris* | purple (marsh) cinquefoil | 2 | |
| *Potamogeton richardsonii* | Richardson's pondweed | 2 | |
| *Potamogeton zosteriformis* | eel-grass pondweed | 2 | mostly north end |
| *Sparganium eurycarpum* | broadfruited bur-reed | 4 | along much of shore, some tall and robust |
| *Spirodela polyrhiza* | great duckweed | 2 | |
| *Tolypella intricata* | macro algae | 1 | |
| *Typha sp.* | cat-tail | 1 | south end |
| *unknown plant* | unknown | | laborador tea? |
| *Utricularia sp.* | bladderwort | 1 | |

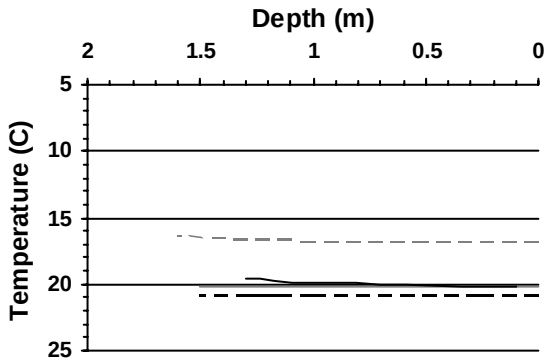
[a] 0 - value not recorded (plant may not be submersed)
1 - few plants in only 1 or a few locations
2 - few plants, but with a wide patchy distribution
3 - plants in large patches, codominant with other plants
4 - plants in nearly monospecific patches, dominant
5 - thick growth covering substrate to exclusion of other species

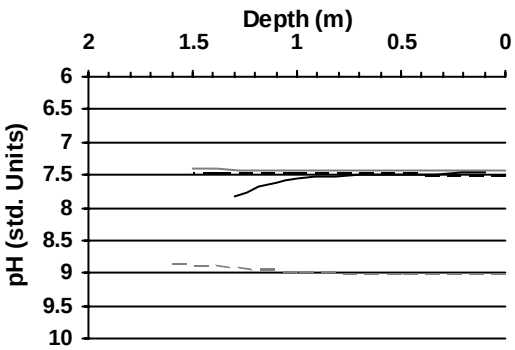
## Secchi Depth and Profile Graphics

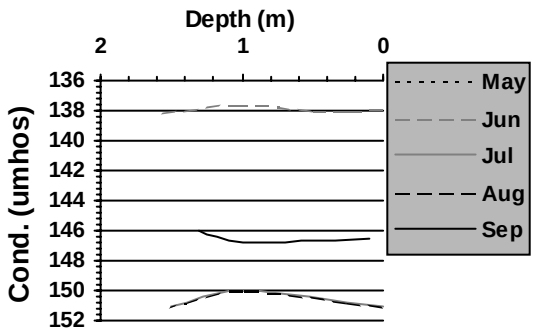
**Station:** 1 LOOPA1



# Secchi Data and Field Observations

LOOMIS

| Date | Time | Temp-erature (F) | Secchi (ft) | Color (1-greens, 11-browns | Bright-ness (pct) | Wind (1-none, 5-gusty) | Rainfall (0-none, 5-heavy) | Aesthetics (1-bad, 5-good) | Swimming (1-poor, 5-good) | Geese (#) | Waterfowl (besides geese #) | Boats-Fishing (#) | Boats-Skiing (#) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Station 1** | | | | | | | | | | | | | |
| 6/4/1999 | | | 2.46 | 8 | 100 | 1 | 1 | 5 | 2 | 0 | 0 | 0 | 0 |
| | Sampler: SMITH | | | Remarks: | Sparganium dominates the shoreline. Vegetation mapped in '96 by Pacific Conservation District. Lots of pollen and algae in water. Iris is newly invasive. Osprey nest and osprey observed. Barn swallows and other swallows abundant. Dissolved oxygen measurement qualified as an estimate due to calibration failing QA/QC requirements. | | | | | | | | |
| 6/22/1999 | | | 3.2 | | | | | | | | | | |
| | Sampler: Parsons | | | Remarks: | | | | | | | | | |
| 7/6/1999 | | | 5.74 | 9 | 100 | 3 | 1 | 5 | 3 | 0 | 0 | 0 | 0 |
| | Sampler: SMITH | | | Remarks: | None | | | | | | | | |
| 8/4/1999 | | | 5.58 B | 7 | 100 | 2 | 1 | 5 | 2 | 0 | 0 | 0 | 0 |
| | Sampler: SMITH | | | Remarks: | Too weedy for swimming | | | | | | | | |
| 9/12/1999 | | | 5.58 B | 6 | 0 | | | 5 | 2 | 0 | 0 | 1 | 0 |
| | Sampler: SMITH | | | Remarks: | Dissolved oxygen measurement qualified as an estimate due to calibration failing QA/QC requirements. | | | | | | | | |